

ABSTRACT

1 An MWD method and apparatus for determining parameters of interest in a
2 formation has a sensor assembly mounted on a slidable sleeve slidably coupled to a
3 longitudinal member, such as a section of drill pipe. When the sensor assembly is held in
4 a non-rotating position, for instance for obtaining the measurements, the longitudinal
5 member is free to rotate and continue drilling the borehole, wherein downhole
6 measurements can be obtained with substantially no sensor movement or vibration. This
7 is particularly useful in making NMR measurements due to their susceptibility to errors
8 due caused by tool vibration. In addition, the substantially non-rotating arrangement of
9 sensors makes it possible to efficiently carry out VSPs, reverse VSPs and looking ahead
10 of the drill bit. A clamping device is used, for instance, to hold the sensor assembly is
11 held in the non-rotating position. The sensor assembly of the present invention can
12 include any of a variety of sensors and/or transmitters for determining a plurality of
13 parameters of interest including, for example, nuclear magnetic resonance measurements.